DOCUMENT RESUME

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ABSTRACT

This document presents a released mathematics test, Form E, from the Nevada High School Proficiency Tests. The first section contains 31 word problems for which students must select the correct answer. The second part of the test contains 29 more test items. Directions, a sheet of formulas to use in calculating answers, and an answer key are provided. (SLD)

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ED 467 801

STATE OF NEVADA

Nevada High School Proficiency Examination

Math

Form E Released

Part 1

TM034339

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DIRECTIONS

DO NOT WASTE TIME ON DIFFICULT QUESTIONS. If a question is particularly difficult and taking a lot of time, go on to the next one and come back to it later. ***Be sure to skip this answer on your answer sheet as well!*** Make sure that the question that you are filling in on the answer sheet is ***the same number as the problem you are working on!***

ANSWER AS MANY QUESTIONS AS YOU CAN IN THE TIME PROVIDED. You should have plenty of time to answer all of the questions on this test. If the test administrator says that time is running out, however, you may wish to make ***your best guess*** on the questions that you have not yet completed.

EACH PROBLEM HAS FIVE POSSIBLE ANSWERS, LABELED A, B, C, D, AND E. Be sure that the problem number on the answer sheet matches the number on the test and then mark your answer by filling in the space that contains the letter of the correct answer----either A, B, C, D, or E. ***Be sure to fill in only one answer on the answer sheet for each question, or the question will be marked wrong!***

YOU WILL NEED TO DO SOME FIGURING WITH PAPER AND PENCIL TO SOLVE SOME OF THE PROBLEMS. ***DO NOT DO ANY WRITING IN THE TEST BOOKLETS!*** Do all figuring on the scratch paper provided and then ***be sure to fill in the correct problem number and answer on the answer sheet!***

IF YOU NEED TO CHANGE AN ANSWER ON YOUR ANSWER SHEET, BE SURE TO ERASE YOUR FIRST MARK COMPLETELY! There can be ***only one mark that shows for each question*** or the question will be counted as wrong. ***Do not make any stray marks*** on the answer sheet!

Work through the sample question below and fill in the space that contains the correct answer.

SAMPLE X.

A machine can make 6 parts in 8 minutes. How many parts can it make in 40 minutes?

A) 36

B) 64

C) 14

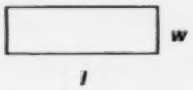
D) 48

E) 30

Formula Sheet

Note To Student: ***You may use these formulas throughout this entire test. Feel free to flip back to this "Formula Sheet" as needed during your testing time.***

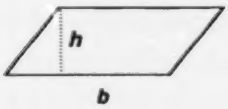
Rectangle



Perimeter $P = 2l + 2w$
or
$P = 2(l + w)$

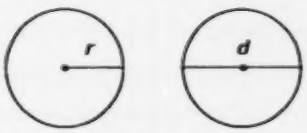
Area $A = lw$

Parallelogram



Area $A = bh$

Circle



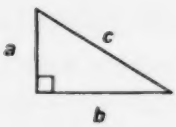
Circumference $C = 2\pi r$
or
$C = \pi d$

Area $A = \pi r^2$

Triangle

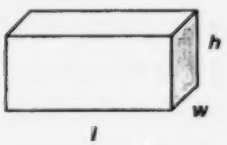
Area $A = \frac{1}{2} bh$

Pythagorean Theorem



$a^2 + b^2 = c^2$

Rectangular Solid

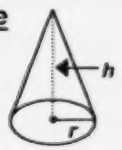


Volume $V = lwh$
Surface Area $SA = 2lw + 2lh + 2hw$

Cylinder

Volume $V = \pi r^2 h$

Cone



Volume $V = \frac{1}{3} \pi r^2 h$

Other Necessary Information

1 square foot = 144 square inches

1 square yard = 1,296 square inches
or 9 square feet

1 cubic foot = 1,728 cubic inches

1 cubic yard = 27 cubic feet

1 meter = 1,000 millimeters

1 kilometer = 1,000 meters

$\pi \cup 3.14$ or $\frac{22}{7}$

Distance $d = rt$

Interest $i = prt$

2 pints = 1 quart

4 quarts = 1 gallon

Part - 1 Part - 1 Part - 1 Part - 1

1. What is the procedure to change any decimal number to a percent?

   A. Add 100 to the decimal.
   B. Subtract 100 from the decimal.
   C. Multiply the decimal by 100 and affix a percent symbol.
   D. Divide the decimal by 100.
   E. Drop the decimal and put a percent symbol at the end of the number.

2. Which of the following has two end points?

   A. point
   B. line
   C. line segment
   D. ray
   E. angle

3. If you wanted to show the percentages of a tax dollar spent by the government on different services, which graph would you choose to best represent the data?

   A. bar graph
   B. pictograph
   C. histogram
   D. line graph
   E. circle graph

4. A roll of paper towels originally had R sheets. Which expression could be used for the number of remaining sheets after T sheets had been used?

   A. $R + T$ sheets
   B. $R - T$ sheets
   C. $R \div T$ sheets
   D. RT sheets
   E. $R - T \times S$ sheets

5. A field is $53\frac{1}{3}$ yards wide. What is the width of the field in feet?

   A. 180 feet
   B. 160 feet
   C. 159 feet
   D. 153 feet
   E. 100 feet

6. Alma's exam scores for history are listed below. What is her average score for the tests?

Test 1	85
Test 2	75
Test 3	77

A. 80
B. 79
C. 78
D. 77
E. 75

7. What is the perimeter of the rectangle below?

A. $10x - 1y$

B. $20x - 2y$

C. $20x^2 - 2y^2$

D. $21x^2 - 20y^2$

E. $21x^2 + 9xy - 2y^2$

8. Bea, Albert, and Lorna joined a friend for lunch. The bill total was $23.20. They each decided to leave a dollar tip and divided the bill evenly. What was each person's share, including the tip?

A. $8.75
B. $7.75
C. $6.80
D. $6.05
E. $5.80

9. Using square tiles that are 2 inches on a side, Tess found she needed exactly 18 tiles to cover an area. What was the total area covered by the tiles?

A. 9 square inches
B. 18 square inches
C. 27 square inches
D. 36 square inches
E. 72 square inches

10. The amount of energy an appliance uses is determined by the formula:

Energy = Power x Time

Appliance	Power Usage (watts per hour)
Hair dryer	1,000
Microwave oven	700
Color TV	200
Refrigerator	620
Stereo	110
100-watt bulb	100

The Honoka family listens to the stereo 3 hours per day and watches TV 2 hours per day. Based on the table above, how much energy is used daily on these two items?

A. 1,550 watts
B. 730 watts
C. 400 watts
D. 330 watts
E. 310 watts

11. A formula used to determine a person's arm strength (S) is:

$$S = (d + p) (\frac{w}{10} + h - 60)$$

d = dips on a parallel bar
p = pull-ups
w = weight in pounds
h = height in inches

If Helga, who is 66 inches tall and weighs 140 pounds, can do 5 dips and 7 pull-ups, what is her arm strength?

A. 240
B. 174
C. 151
D. 50
E. 40

12. Which of the following figures contains line segments that appear to be perpendicular?

A.

B.

C.

D.

E. None of these

13. An electronics store has five different types of car stereos available. The prices are $65, $95, $95, $80, and $75. The store advertised the typical price of a stereo as $80. What measure of central tendency was used in the advertisement?

A. mean
B. mode
C. median
D. range
E. none of these

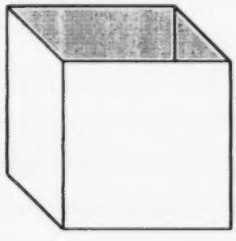
14. The length of a rectangle is 3 units more than its width. If w represents the width of the rectangle, which of these expressions represents the area of the rectangle?

A. $w + 3$
B. $w^2 + 3$
C. $3w$
D. $w(w + 3)$
E. $3w(w + 3)$

15. A machine seals 30 boxes in 2 minutes. How many minutes would it take to seal 105 boxes?

A. 3.5 minutes
B. 7 minutes
C. 22.5 minutes
D. 37.5 minutes
E. 60 minutes

16. The diagram below shows a box without a top. Each of its sides is a square. Each side of the square measures 8 units in length. What is the sum of the surface area of the five sides?



A. 400 square units
B. 320 square units
C. 64 square units
D. 40 square units
E. 32 square units

17. A fast food chain includes toys in each child's meal. If the toys include two types of dolls, three types of cars, four types of movie characters and five different stuffed animals, what is the probability of getting a car in a child's meal?

A. $\frac{3}{14}$

B. $\frac{1}{14}$

C. $\frac{3}{4}$

D. $\frac{1}{4}$

E. $\frac{1}{3}$

18. The list price for a dress is $90. If a discount of $10.80 was given for paying cash, what percent of the list price was the discount?

A. 8%

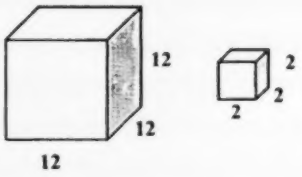
B. 9%

C. 10%

D. 10.8%

E. 12%

19. How many of the smaller cubes below will fit inside the larger cube? **(Diagram not drawn to scale)**



A. 576

B. 216

C. 144

D. 36

E. 12

20. Fred is at the supermarket. He has collected the items listed on the chart below in his shopping cart, but he has only $12 to spend. What is the least expensive item he can put back and still have enough money to pay for the other items?

Items	Cost
Shampoo	$2.95
Cookies	$3.00
Juice	$1.89
Ice Cream	$4.80
Potatoes	$2.29

A. Shampoo

B. Cookies

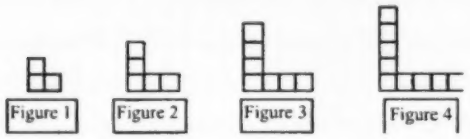
C. Juice

D. Ice Cream

E. Potatoes

Part - 1 Part - 1 Part - 1 Part - 1

21. If the pattern below is continued, what figure will contain 35 tiles?



A. Figure 10
B. Figure 14
C. Figure 17
D. Figure 21
E. Figure 35

22. A car with a full tank of gas will travel 220 miles. If the fuel gauge on a car shows that the tank is three-fourths full, which expression shows how to calculate the miles remaining before the tank is empty?

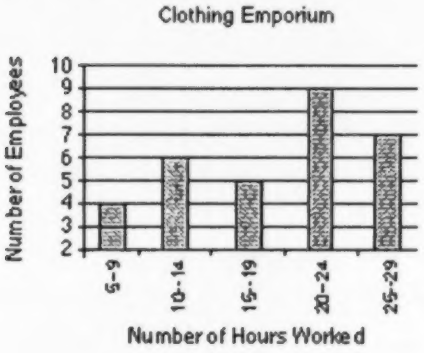
A. $220 + 3 \times 4$
B. $220 + 3 \div 4$
C. $220 \div 4 + 3$
D. $220 \times 4 - 3$
E. $220 \times 3 \div 4$

23. One milliliter of water at 4°C has a mass of approximately one gram. What is the approximate mass of 1 liter of water at this temperature?

A. 40 grams
B. 100 grams
C. 400 grams
D. 1000 grams
E. 4000 grams

Part - 1 Part - 1 Part - 1 Part - 1

The graph below shows the number of hours worked each week by part-time employees at Clothing Emporium. Use the graph information to answer questions 24 and 25.



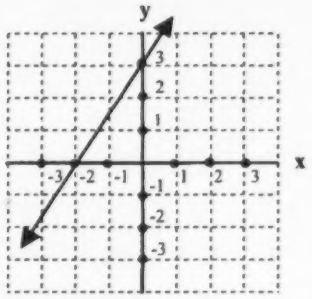
24. What is the most common number of hours worked?

A. 25-29
B. 20-24
C. 15-19
D. 10-14
E. 5-9

25. What is the total number of part-time employees working at Clothing Emporium?

A. 10
B. 25
C. 27
D. 29
E. 31

26. What is the slope of the line in the graph below?



A. 3
B. -2
C. $\frac{3}{2}$
D. $\frac{2}{3}$
E. $-\frac{3}{2}$

27. If $3x + c = 4$, then x equals:

    A. $4 - c$

    B. $\frac{4-c}{3}$

    C. $\frac{c-4}{3}$

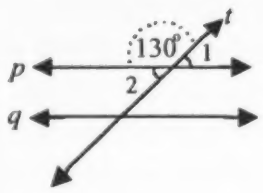
    D. $3(4 - c)$

    E. $\frac{4}{3} - c$

28. A camera store charges $6.29 to develop a roll of 24-exposure color film plus $0.17 for each additional print. What is the total charge to develop a roll of 24 exposures and make a second print of each picture?

    A. $12.58
    B. $10.37
    C. $8.16
    D. $6.46
    E. $4.08

29. If p is parallel to q in the figure below, what is the sum of angles 1 and 2?



    A. 50°
    B. 100°
    C. 130°
    D. 180°
    E. 260°

30. Two bags containing 88 and 112 jelly beans were combined. The percent of watermelon jelly beans in each bag was 25% and 50%, respectively. Anthony selects one jelly bean. What is the probability he selected a watermelon jelly bean?

A. 30%
B. 35%
C. 37.5%
D. 39%
E. 75%

31. What is the expression for the *n*th term in the sequence below?

Term	Value
0	0
1	4
2	12
3	24
4	40
5	60
--	--
n	?

A. $2n^2 - 2n$
B. $2n(n + 1)$
C. $n^2 - n$
D. $3n - 1$
E. $n(n + 1)$

Math

Form E

Part 2

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Part - 2 Part - 2 Part - 2 Part - 2

32. Which expression is equivalent to five less than eight times a number?

    A. $5 < 8n$
    B. $8n < 5$
    C. $5 - 8n$
    D. $8n - 5$
    E. $8n + 5$

33. What is the volume of a box 1 foot long, 1 foot high, and 1 foot wide?

    A. 1 square foot
    B. 1 cubic foot
    C. 3 square feet
    D. 3 cubic feet
    E. 6 square feet

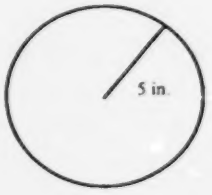
34. A lawyer charges her clients two different hourly rates. She charges $105 per hour in court © and $75 per hour office/research time (t). The initial charge for taking on a case is $500. What expression best represents the formula used by the lawyer?

    A. $680(c + t)$
    B. $105c + 75t$
    C. $500 + 180(c + t)$
    D. $500(105c + 75t)$
    E. $500 + 105c + 75t$

35. A bag of candy bars contains 6 Milky Ways®, 7 Crunches, 3 Skors®, 2 Peppermint Mints®, and 9 Big Hunks. When Kevin reaches in and picks one candy bar, what is the probability that he will pick a Skor® or a Milky Way®?

    A. $\frac{2}{9}$
    B. $\frac{1}{6}$
    C. $\frac{13}{27}$
    D. $\frac{1}{3}$
    E. $\frac{1}{9}$

36. Which measurement is closest to the circumference of the circle below?

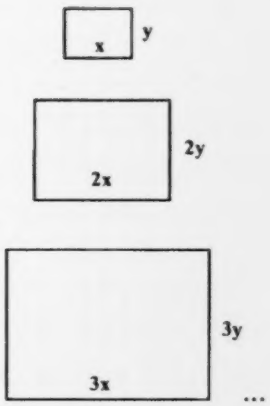


    A. 10 inches
    B. 15 inches
    C. 20 inches
    D. 25 inches
    E. 30 inches

37. Brandon wants to enlarge a photo that is 4 inches wide and 6 inches high to make a 24-inch-wide poster. How high will the poster be?

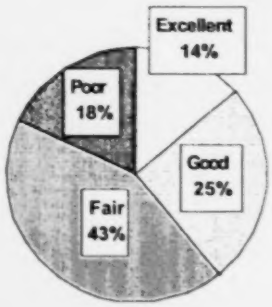
A. 36 inches
B. 34 inches
C. 24 inches
D. 16 inches
E. 10 inches

38. What is the perimeter of the next rectangle in the pattern below?



A. 4xy
B. $8x^2y^2$
C. 16xy
D. 4x + 4y
E. 8x + 8y

39. A news magazine asked 1000 people to judge the President's performance in office as poor, fair, good, or excellent. The results are displayed in the graph below. How many people in the pool rated the President's performance as good or excellent?

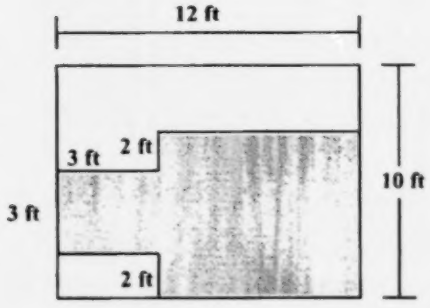


A. 100
B. 140
C. 250
D. 390
E. 500

Part - 2 Part - 2 Part - 2 Part - 2

40. Calculate the area of the shaded region below.

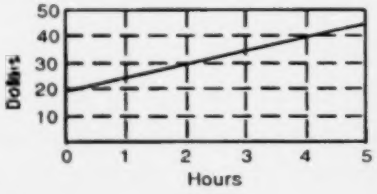
(Diagram not drawn to scale)



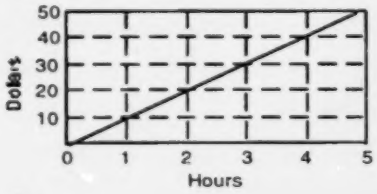
A. 36 ft^2
B. 63 ft^2
C. 72 ft^2
D. 105 ft^2
E. 120 ft^2

41. Sheila has $20. She will receive an additional $5 per hour for doing a job for her dad. Which graph shows the relationship between the number of hours Sheila works and the total amount of money she will have?

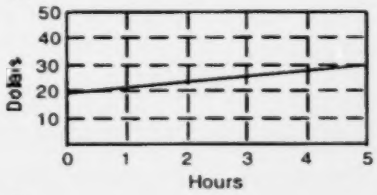
A.



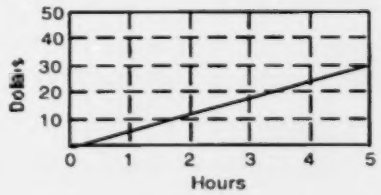
B.



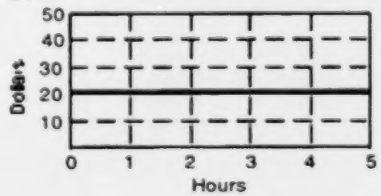
C.



D.



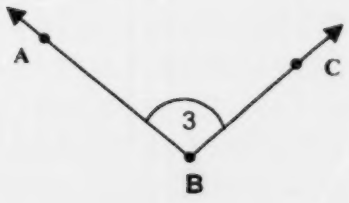
E.



42. Miranda has a gift-wrapping business. She has 15 types of paper, 10 types of ribbon, and 12 different bows. Which expression represents the number of different combinations of paper, ribbon, and bows available?

A. 15 + 10 + 12
B. 15(10 + 12)
C. 10(15 +12)
D. 12(15 + 10)
E. 15 x 10 x 12

43. Which of the following is not a proper way to name the angle shown below?



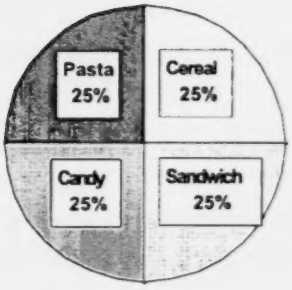
A. ∠ ACB
B. ∠ABC
C. ∠CBA
D. ∠ B
E. ∠ 3

Part - 2 Part - 2 Part - 2 Part - 2

44. The foods below represent the total calories consumed in a day. Which graph best represents the data in the table below?

Meals	Calories
Cereal	250
Sandwich	325
Candy	125
Pasta	300

A.



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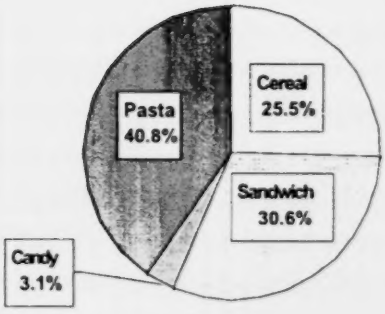
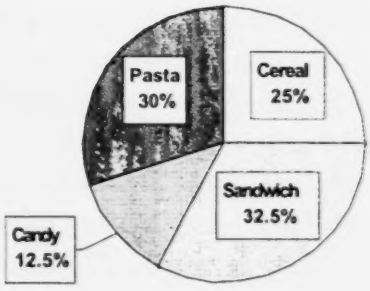
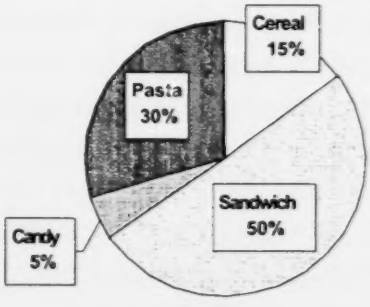


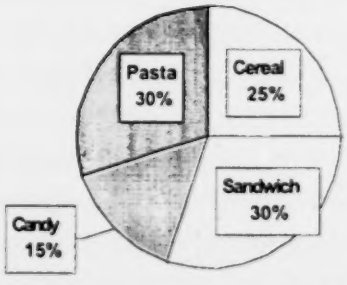
C.



D.



E.



Part - 2 **Part - 2**

45. The length of the side of a regular hexagon is 5 centimeters. What is the perimeter of the hexagon?

    A. 15 cm
    B. 20 cm
    C. 25 cm
    D. 30 cm
    E. 35 cm

46. Over the summer, Tina swam in 45 swim meets. She won 27 meets. What percent of the swim meets did Tina win?

    A. 27%
    B. 40%
    C. 43%
    D. 60%
    E. 80%

47. Mark and Jose have a combined weight of 270 pounds. Mark weighs 30 pounds less than twice Jose's weight. How much do Mark and Jose weigh?

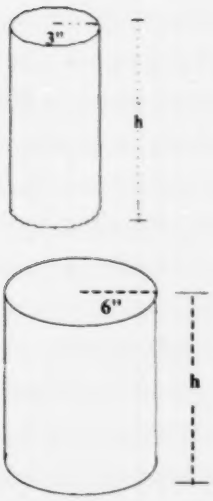
    A. Mark weighs 170 pounds and Jose weighs 100 pounds.
    B. Mark weighs 165 pounds and Jose weighs 105 pounds.
    C. Mark weighs 145 pounds and Jose weighs 125 pounds.
    D. Mark weighs 135 pounds and Jose weighs 135 pounds.
    E. Mark weighs 120 pounds and Jose weighs 150 pounds.

Part - 2 **Part - 2**

48. A bag contains four chips, numbered 3, 5, 7 and 8. Two chips are drawn at random. What is the probability that the sum of the two chips is an odd number?

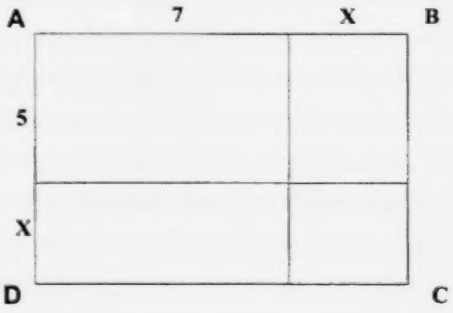
    A. $\frac{1}{6}$
    B. $\frac{2}{6}$
    C. $\frac{3}{6}$
    D. $\frac{4}{6}$
    E. $\frac{5}{6}$

49. It takes 198 cubic centimeters of sand to fill the small cylinder below. If the cylinder is stretched so the height stays the same but the radius is doubled, how much sand is needed to fill the new cylinder?



A. 7128 cubic centimeters
B. 1188 cubic centimeters
C. 792 cubic centimeters
D. 494 cubic centimeters
E. 396 cubic centimeters

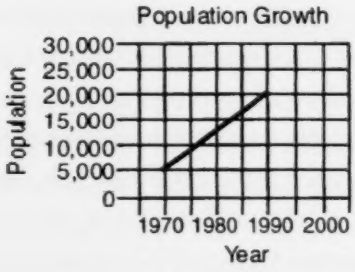
50. Which of the expressions represents the area of the rectangle ABCD below?



A. $7(5 + x) + x(5 + x)$
B. $5(7 + x) + x(7 + x)$
C. $(5 + x)(7 + x)$
D. $35 + 5x + 7x + x^2$
E. all of the above

Part - 2 Part - 2

51. The graph below shows the population for a small town. What is the best estimate for the population of the town in the year 2000?



A. 30,000
B. 27,500
C. 25,000
D. 22,500
E. 20,000

52. Which letter below has a vertical line of symmetry?

A. **B**
B. **C**
C. **E**
D. **M**
E. **N**

Part - 2 Part - 2

53. Which expression represents the mixed number $11\frac{9}{14}$?

A. 11 x 9 + 14
B. 119 ÷ 14
C. 11 + (9 ÷ 14)
D. 11 ÷ 9 x 14
E. 11 x 9 ÷ 14

Part - 2 Part - 2 Part - 2 Part - 2

Use the table below to answer questions 54 and 55.

Jackson Family Budget

Expense Item	Percent of Budget
Medical	9
Housing	20
Taxes	32
Clothing	10
Transportation	8
Food	16
Other	5

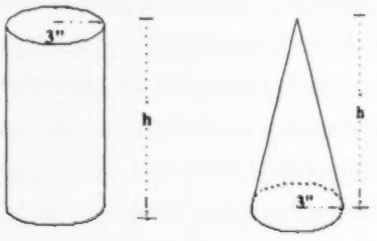
54. When making a circle graph, how large would the central angle be for housing?

A. 72°
B. 60°
C. 40°
D. 36°
E. 20°

55. The Jackson household income is $40,000. How much is spent on the three least expensive items in their budget?

A. $22
B. $880
C. $985
D. $8,800
E. $9,850

56. Ted poured 198 cubic centimeters of sand to fill the cylinder below. How much sand is needed to fill a cone of the same height and with a base of the same radius?



A. 50 cubic centimeters
B. 66 cubic centimeters
C. 99 cubic centimeters
D. 132 cubic centimeters
E. 198 cubic centimeters

57. If each $\frac{1}{4}$ inch of a floor plan represents 2 feet, what length is represented by a $4\frac{3}{4}$ inch segment?

A. 38 feet
B. 19 feet
C. 9.5 feet
D. 7 feet
E. 5 feet

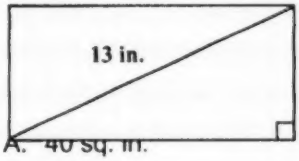
Part - 2 Part - 2

58. The Save More Taxi Company charges passengers a fixed amount plus an amount based on the number of miles traveled. The charge for each mile is the same. Use the information in the table below to determine the cost of an 8-mile trip.

Number of Miles	Cost
1	$3.40
2	$4.60
3	$5.80
4	$7.00

A. $9.60
B. $11.80
C. $14.00
D. $18.40
E. $27.20

59. Find the area of the rectangle below.



A. 40 sq. in.
B. 60 sq. in.
C. 65 sq. in.
D. 130 sq. in.
E. 169 sq. in.

Part - 2 Part - 2

60. It was 41°F at 8:00 a.m. and 69°F at 4:00 p.m. If the temperature rose at a constant rate, what was the temperature at 1:00 p.m.?

A. 55.5°F
B. 57.0°F
C. 58.5°F
D. 59.0°F
E. 61.5°F

Math Form E Released

1.	C	21.	C	41.	A
2.	C	22.	E	42.	E
3.	E	23.	D	43.	A
4.	B	24.	B	44.	C
5.	B	25.	E	45.	D
6.	B	26.	C	46.	D
7.	B	27.	B	47.	A
8.	C	28.	B	48.	C
9.	E	29.	B	49.	C
10.	B	30.	D	50.	E
11.	A	31.	B	51.	B
12.	A	32.	D	52.	D
13.	C	33.	B	53.	C
14.	D	34.	E	54.	A
15.	B	35.	D	55.	D
16.	B	36.	E	56.	B
17.	A	37.	A	57.	A
18.	E	38.	E	58.	B
19.	B	39.	D	59.	B
20.	A	40.	C	60.	C

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